

# Modified Power Inverter

## DF-SUN 2500

### ◆ Safety Information

Read all the Cautions and Warnings before installing and using the power inverter. The inverter must be properly installed.

The power inverter generates AC power from your DC supply (such as batteries). Treat the AC output just like you treat the AC output in your house.

Keep children away from the unit.

- Do not connect the unit to AC distribution wiring.
- Keep the unit away from water. Do not allow water to drip or splash on to the power inverter.
- Keep the unit in cool environments. Keep out of direct sunlight and away from heating vents.
- Keep the unit away from flammable material or in any location which may accumulate flammable fumes or gases.
- With heavy use, the unit will become warm and possibly hot. So keep it away from any heat sensitive materials.
- Make sure the opening to the vent holes is not blocked.
- Do not open the unit. High voltages are inside.
- Use proper size wiring. High power inverters can draw many amps from the DC source and can melt wires if not fused and sized properly.



### ◆ Energy source

Power Inverter is powered by batteries or DC suppliers. For batteries or DC suppliers, the output voltage must be in the prescriptive range of the inverter's input voltage and the output current should meet inverter's operation requirement. The detail requirement depends on the power of loads. If with the battery power supplying, the using time of battery has the relationship with the battery capacity and the power of the connected load. When the battery is full, the simple calculating method of the using time is shown as below:

Time (Hour) = battery capacity (AH) ÷ [electrical power of using (W) ÷ q (V)]. The 'q' depends on the battery voltage. Referring to the 12V battery, q = 10; referring to the 24V battery, q = 20; referring to the 48V battery, q = 40. Such as the 24V DC input inverter uses the 24V battery, if the battery capacity is 300AH and at this time the inverter is driving 2000W power load, when the battery is full, according to the formula above, the battery use time = 300 (AH) ÷ [2000 (W) ÷ 20 (V)] = 3 (Hour). This means the battery can be used for 3 hours.

The capacity of the batteries must be large enough when big power loads are used.

### ◆ Appliance connection

1. Attention the positive pole and negative pole when wiring. Connect one "O" terminal of red cable to the red terminal of the inverter's DC input "+" and another "O" terminal to the positive terminal of the DC supply; connect one "O" terminal

of black cable to the black terminal of the inverter's DC input “-” and another “O” terminal to the negative terminal of the DC supply.

2. Switch on the inverter. If the indicator LED is green, it means it works properly, if the LED is red, and alarm will beep, it means the inverter is faulty and if so please turn off the inverter immediately and check the inverter.
3. Insert the appliance plug into the inverter's AC output outlet. Switch on the inverter. If the indicator is green, the appliance can work properly. The inverter has soft-start function.
4. When the inverter is working, if the alarm beeps, the indicator LED would take red, which means the inverter is faulty. Corresponding fault can be identified as shown in the section “Security feature”. After fixing the fault, you can restart it.

## ◆ Specification(@20 °C)

	DF-SUN 2500/12-230	DF-SUN 2500/24-230	DF-SUN 2500/48-230	DF-SUN 2500/12-120	DF-SUN 2500/24-120	DF-SUN 2500/48-120
Output Continuous Max. Power	2500W					
Output Surge Power	5000W					
Converting Max. Efficiency	>88%	>90%	>92%	>88%	>90%	>92%
Normal Input Voltage	DC12V	DC24V	DC48V	DC12V	DC24V	DC48V
Input Voltage Range	DC10~15V	DC20~30V	DC40~60V	DC10~15V	DC20~30V	DC40~60V
Output Voltage	AC230±5%			AC120±5%		
Output Frequency	50Hz±2%			60Hz±2%		
Output Wave Form	Modified Sine Wave					
No load Current(Average)	<0.20A	<0.15A	<0.12A	<0.20A	<0.15A	<0.12A
Input Low-Voltage Alarm Voltage	10.5±0.5V	21±0.5V	42±1V	10.5±0.5V	21±0.5V	42±1V
Input Under-voltage Cut Off Voltage	10±0.5V	20±0.5V	40±1V	10±0.5V	20±0.5V	40±1V
Input Over-voltage Cut Off Voltage	15±0.5V	30±0.5V	60±1V	15±0.5V	30±0.5V	60±1V

\*: Measuring output voltage, please use the RMS Meter, or there will be errors between measurement and actual value. No load current is measured under the normal input voltage.

## ◆ Security features

There are full protection and audio-visual alarm system in SUN-2500 power inverter. It can provide a full range of protection, mainly over-voltage protection, low-voltage alarm, under-voltage protection, over-heat protection, overload protection, short circuit protection, reverse polarity protection etc.

Protection and alarm sound definition:

- Low-voltage alarm: When the input DC voltage is lower than low-voltage alarm voltage, low battery alarm will remind the user that there is less power, but the power inverter can still continue to work. The alarm sound is the long sound "beep --- beep ... ...."
- Under-voltage protection: When the input DC voltage is lower than the cut off under-voltage, the power inverter output will be cut off automatically .Sound alarms "beep-beep-beep --- beep- beep-beep ... ...." When the input voltage returned to the normal input voltage, the inverter will restart output automatically. If the input voltage immediately returned to normal after alarm, the alarm sound will continue to sound about 30S and then restart the output.
- Over-voltage protection: When the input DC voltage is higher than the cut off over-voltage, the power inverter output will be cut off automatically. Sound alarms "beep-beep-beep --- beep- beep-beep ... ...." When the input voltage returned to the normal input voltage range, the inverter will restart output automatically. If the input voltage immediately returned to normal after the alarm, the alarm sound will continue to sound about 30S and then restart the output.

- Over-heat protection: When the internal temperature of power inverter is too high (above about 85℃), the power inverter output will be cut off automatically. Sound alarms "beep-beep-beep-beep--- beep-beep-beep-beep ... ...." Need to restart manually.
- Overload protection: When the power of electric apparatus which are driven by the power inverter exceeds the inverter's maximum output, the output would be cut off automatically. Sound alarm "beep-beep---beep-beep ... ...." Need to restart manually.
- Short-circuit protection: When the output short-circuited, or the loads are very big, the power inverter output will be cut off automatically. Sound alarms "beep-beep-beep-beep-beep---beep-beep-beep-beep-beep... ...." Need to restart manually.
- Reverse polarity protection: When the input positive and negative pole of the power inverter was connected reversed, it will fuse down the inverter's fuses to protect the internal circuits. After the replacement of fuses, inverter can work properly.

#### ◆ **Working environment**

1. Operation temperature: -10℃ ~40℃ .
2. Storage temperature: -40℃~65℃.
3. Considerable air humidity should be less than 85%.
4. No electrical conductivity, dust explosion, corrosion-free gas in the working place.
5. No shock and vibration in the working place.

#### ◆ **Physical properties**

- A. G.W.:7.6kgs
- B. Size: 420mm\*255mm\*100mm